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EXAMINER	
LIN, JAMES	

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1762	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.** 10/677,251	**Applicant(s)** MIYADERA ET AL.	
	Examiner Jimmy Lin	**Art Unit** 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) *5-13* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 14-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 14 and 16 rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for changing the organic EL layer to be highly resistive with a laser, does not reasonably provide enablement for changing *any* characteristic of the organic EL layer with a laser. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. The specification does not teach changing the characteristic of the organic EL layer except for increasing its resistance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim et al. (U.S. Patent 6,146,715).

Kim discloses a method of making an organic electroluminescent device (EL) (abstract), the method comprising:

forming a first electrode 102 on a substrate 101;

forming an organic EL layer 105a on the first electrode;

forming a second electrode 106a on the organic EL layer;

sealing the electrodes and EL layers with a protection layer 107a to produce an organic luminescence device having substantially uniform light emission characteristic;

irradiating the organic luminescence device with a laser beam to form a predetermined luminescent pattern thereon (col. 1, lines 45-49; col. 6; Figs 8A-8E).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim '715 as applied to claims 1 and 3 above. Evidence of inherency is cited from http://eosweb.larc.nasa.gov/EDDOCS/Wavelengths_for_Colors.html (hereafter Eosweb).

Kim is discussed above. Kim teaches using a laser beam having a green emission (wavelength of about 510 nm, from Table 1) and lasers having emission wavelengths as low as 16 nm, but does not explicitly teach using a laser beam of a blue emission wavelength (wavelength of about 475 nm, according to Eosweb).

Kim does teach that a laser beam at an appropriate wavelength should be selected, based on the physical and chemical properties of the materials to be etched (col. 6, lines 53-60). It has been held that the discovery of the optimum value of a result effective variable in a known process is ordinarily within the skill in the art. *In re Boesch and Slaney*, 205 USPQ 215 (CCPA 1980). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used a laser of a blue emission in order to etch the layers of Kim through routine experimentation because Kim teaches that the physical and chemical properties determine the appropriate wavelength to be used and because the blue emission wavelength falls within the range of wavelengths taught in Table 1. One would have been motivated to do so in order to have optimized the etching process based on the specific materials of the layers.

8. Claims 1, 3, and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cloots et al. (U.S. Patent No. 6,444,400) in view of Kim '715.

Cloots teaches a method of forming an EL display comprising of a first electrode, an EL layer, and a second electrode. The EL layer is interpreted to be the light emitting layer and the hole-injection layer. The hole-injection layer can be patterned using the disclosed method (col. 6, lines 3-21). In the method of Cloots, a layer is deposited such that the initial surface resistivity is high. By heating selected areas, the surface resistivity is lowered and a pattern is formed (col. 2, lines 34-50). Typical lasers can be used as the heating element to form the patterns (col. 5, lines 18-30).

Cloots does not explicitly teach that the EL display is sealed. However, Kim teaches that an EL display can be sealed with a protection layer to prevent moisture from penetrating into the EL elements because moisture can degrade the EL elements (col. 5, line 65-col. 6, line5; col. 6, lines 17-22). Therefore, in order to improve the lifetime of the EL device, it would have been obvious to one of ordinary skill in the art at the time of invention to have sealed the EL display of Cloots with a reasonable expectation of success.

Cloots and Kim do not explicitly teach the order of sealing the EL display and performing the laser patterning method of Cloots. In particular, they do not explicitly teach that the EL layers are sealed prior to the laser patterning. However, the selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results. See, for instance, *In re Burhans,* 154 F.2d 690, 69 USPQ 330 (CCPA 1946). One of ordinary skill in the art would have recognized that performing either the sealing step or the laser patterning step first would have given similar results. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have sealed the EL layers prior to laser patterning, as opposed to laser patterning prior to sealing the EL layers, with a reasonable expectation of success because one of ordinary skill would have expected both methods to be operable equivalents and because the Applicant has not provided unexpected results for using the claimed order of steps.

Claims 15,17: The term "highly resistive" is a relative term. Thus, the resistivity of the EL layer after the laser patterning will be interpreted to be "highly resistive" regardless that the surface resistivity was lowered in the laser patterning process.

9. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cloots '400 in view of Kim '715 as applied to claims 1 and 3, and further in view of Fukunaga et al. (U.S. Patent No. 7,186,601). Eosweb is used as evidence of inherency.

Cloots and Kim and discussed above, but do not explicitly teach the use of a laser beam of a blue emission wavelength. Cloots does teach that a typical laser can be used. Accordingly, Fukunaga teaches that an XeF excimer laser having a wavelength of 483 nm (i.e., having a blue emission wavelength, see Eosweb) were well known. Because such lasers were considered to be a typical laser, it would have been obvious to one of ordinary skill in the art at the time of invention to have used the excimer laser of Fukunaga as the particular laser in the patterning method of Cloots with a reasonable expectation of success.

Response to Arguments

10. Applicant's arguments filed 3/29/2007 have been fully considered but they are not persuasive.

Claims 1 and 3 as anticipated by Kim '715:

The Applicant argues on pg. 7 that the embodiments of the disclosure of the instant application are directed to a method for forming an organic EL device by irradiating a laser beam on an organic an EL layer of the organic EL device to change its characteristics, e.g., to be highly resistive. However, this argument is not in commensurate in scope with claims 1-4 because they do not require any limitations on the characteristics of the EL layer.

The Applicant argues on pg. 8 that Kim does not teach irradiating a sealed organic EL device with a laser beam to form a luminescent pattern thereon. However, this argument is not correct because Kim teaches that the EL layer 105a is sealed with protection layer 107a (Fig. 8D) and that a laser beam is used to pattern the EL layer 105a which had been previously sealed (Fig. 8E). Thus, Kim meets all the limitations of the claim.

Claims 2 and 4 as rejected over Kim '715:

The Applicant traverses the citation of Wikipedia and argues on pg. 8 that the associated rejections using the Wikipedia citation should be withdrawn. The Examiner will withdraw the Wikipedia citation. However, this citation was merely to provide evidence of inherency that the green emission wavelength is longer than the blue emission wavelength and, thus, was not used to show obviousness. Although the Wikipedia citation has been replaced with an Eosweb citation, the rejection is not considered to be a new grounds of rejection. It should be noted that the Applicant did not challenge the statement of inherency.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bradley, Jr. et al. (U.S. Patent 5,824,374) teaches a method of patterning EL layers with a laser.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is 571-272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JL
JL

KEITH HENDRICKS
PRIMARY EXAMINER